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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/745,468	12/26/2000	Naoki Tsuji	49657-862	1840

7590 10/02/2002

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EXAMINER

RAO, SHRINIVAS H

ART UNIT

PAPER NUMBER

2814

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/745,468

Applicant(s)

TSUJI, NAOKI 

Examiner

Steven H. Rao

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 2 and 4-11 is/are pending in the application.
- 4a) Of the above claim(s) 5-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1, 2, 4 and 11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 December 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☒ Interview Summary (PTO-413) Paper No(s). 13
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

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## **DETAILED ACTION**

### ***Priority***

Receipt is acknowledged of paper submitted under 35 U.S.C. 120, claiming priority from U.S. Patent Application No. 09/754,468 filed December 26, 2000 which itself claims priority from Japanese Patent Application No. 2000-221942 filed July 24, 2000 papers have been placed of record in the file.

### ***Request For Continued Examination***

The request filed on 07/11/2002 for a Continued Examination Application (RCE) under 37 CFR 1.114 based on parent Application No. 09/745,468 is acceptable and a RCE has been established. An action on the RCE follows.

### ***Preliminary Amendment Status***

Acknowledgment is made of entry of preliminary amendment filed 05/21 /02 has been entered on July 11,2002.

Therefore claims 1and 2 as amended by the amendment and claim 4 as originally filed and presently newly added claim 11 are currently pending in the application.

### ***Claim Rejections - 35 USC § 112***



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Claims 1, 2, 4 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1 the phrase "a second region adjacent to the first region" renders the claim indefinite because the term "a second region adjacent to the first region" does not clearly tell one of ordinary skill in the art as to what applicants' want to include or exclude from their recitation.

Further Applicants' specification or prior art does not clarify what applicants' want to include or exclude from their above recitation.

Claims 2, 4 and 11 are rejected at least for depending upon a rejected claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4 and 11 rejected under 35 U.S.C. 103(a) as being unpatentable over Shimizu (U.S. Patent No. 5,946,230 herein after Shimizu) for reasons set out. In the previous Office Action and incorporated here by reference for the sake of brevity, with respect to claims 1, 2, and 4 and for reasons set out below.

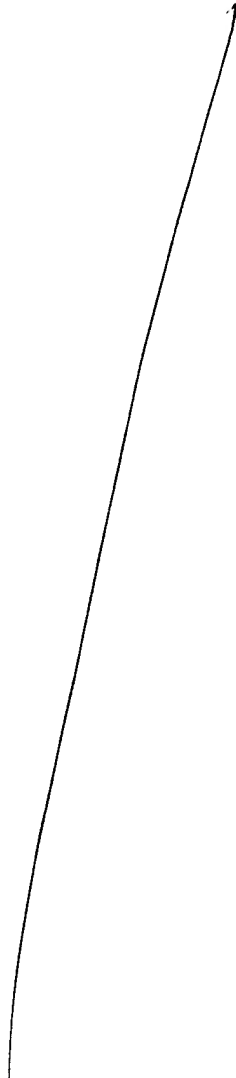
With respect to claim 1, to the extent understood, Shimizu describes all the limitations presently recited in the claim.

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The newly added limitation a second region adjacent to the first region ( Shimizu fig. 13b etc.)

Trench isolation patterns ( fig. 21 b # 12 (STI), .. and extending continuously in a first direction ( Fig. 21 B #12 extending continuously in at least the lateral and/or vertical directions) .

Wherein the dummy trench isolation patterns comprise a pattern, which constitutes a positioning mark and extends in a second direction different from the first direction. ( Shimizu figs. 13B to 15 reproduced below , col. 13 line 63 to col. 14 lines 14 and col.22 line 45-60).



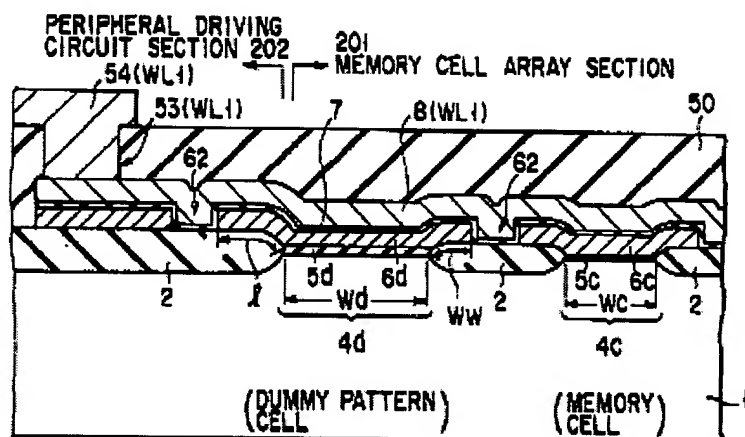


FIG. 13B

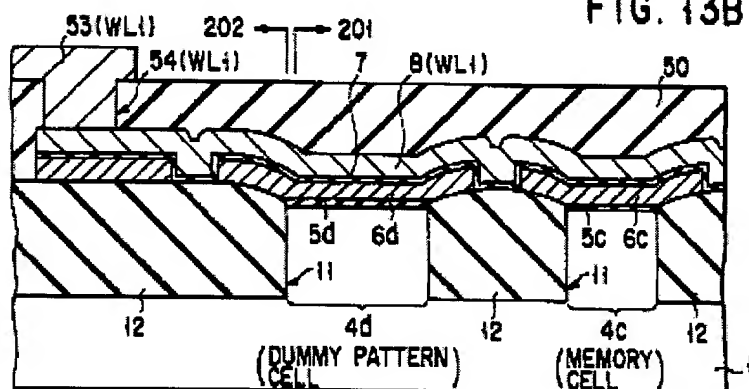


FIG. 14

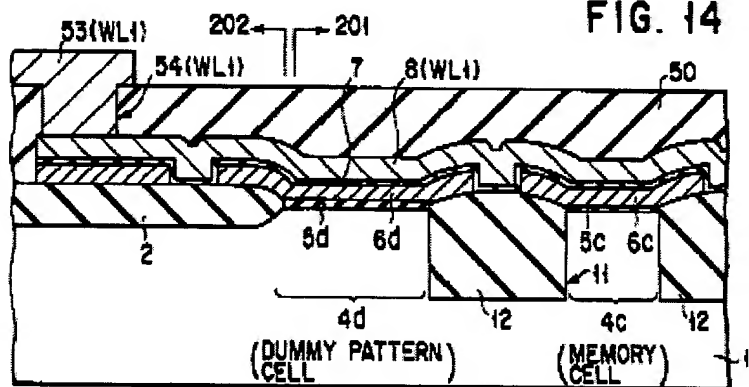


FIG. 15

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With respect to claim 2 to the extent understood, in addition to description previously described and incorporated here by reference for the sake of brevity, the only new limitation is "wherein the first and second regions "( i.e. the memory cell region and the peripheral circuit region ) "are arranged in the first direction " ( see figs. 13 B to 15 above) "and the dummy region extends in the first direction along the first and second regions." ( see above figures the dummy region extends in the first direction ( i.e. parallel to the substrate) along the memory region ( first region) and peripheral ( second region) i.e. region at the extreme left of the figure that is not marked but clearly identified in figs. 5, 12A, 21 A etc.).

With respect to claim 11, to the extent understood, Shimizu describes a semiconductor device wherein the pattern of the dummy trench isolation extends in a vertical direction with respect to the first direction. ( See fig. 21 b # 12 (STI), reproduced below and extending in vertical direction) .

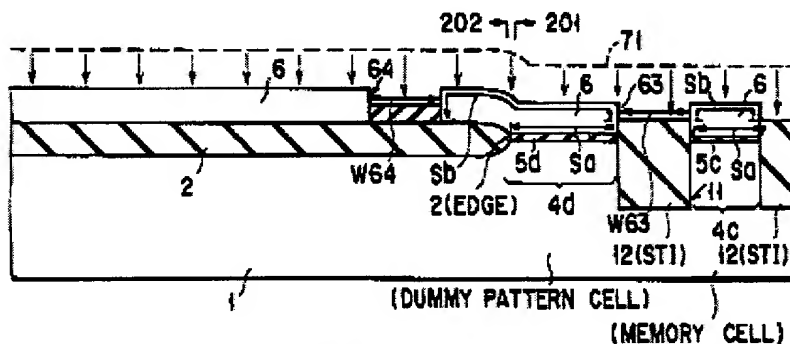


FIG. 21B

Therefore all the limitations in currently pending claims 1, 2, 4 and 11 are fully described / taught by the applied prior art of record and these claims are rejected for

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reasons previously set out in the last two Office Actions and incorporated here by reference and those set out above.

***Response to Arguments***

Applicant's arguments filed 5/13/02 have been fully considered but they are not persuasive. for reasons set out at length above.

Applicants' arguments that the first and second regions are adjacent, the trench isolation regions extending continuously in one direction, the dummy trench isolation pattern constituting a positioning mark and extending in a different from that of the trench isolation. All have been dealt with in detail above.

Applicants' arguments with respect to calim11, that dummy trench isolation pattern extends in a vertical direction with respect to the first direction ( as recited in the claim) has also been dealt with in detail above.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Steven H. Rao whose telephone number is (703) 306-5945. The examiner can normally be reached on Monday- Friday from approximately 7:00 a.m. to 5:30 p.m.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. The Group facsimile number is (703) 308-7722.

Steven H. Rao

Patent Examiner

September 27, 2002.



JEROME JACKSON  
PRIMARY EXAMINER